Maximizing Assessment of High Risk Foot During Dialysis

By

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Abstract

Introduction: The End Stage Renal Disease (ESRD) veteran's are at high risk for foot co-morbidities/conditions. The goal of this project was to determine if foot care needs are being met for the ESRD veteran in the Dialysis Unit and to capture the time during dialysis to provide foot screening and self-management education about foot care. We utilized the time during dialysis to perform foot assessments and provide a new computerized interactive self-management education power-point program with prevention of foot complications information in this continuous quality improvement project.

Method: Evaluated staff resources and needs and provided books, videos and in-services. Formed a dialysis foot care team, demonstrated foot inspection/assessment technique, and provided staff education with use of an interactive computerized education program on foot care and assessments, provided access to computerized clinical foot reminders and use of the foot care template, and books and posters from the VA and DoD Diabetes Tool Kit. We recommended modifications of the foot care template, and the addition of ICD-9 codes to include PVD and ESRD which would alert staff to high risk patients requiring a foot screen and assessment. We reviewed retrospective data to establish baseline for comparison of data obtained during the two, six month block time frame studies at our single site dialysis unit. We introduced a new computerized, interactive education CD on foot care for review during each veteran's dialysis treatment. Each veteran completed a patient education survey and a patient satisfaction survey, (Survey of Healthcare Experience of Patients-SHEP) after the education. For some of the veterans new to dialysis, this had been their initial self-management education of foot care.

Results: Data was collected by our computerized Clinical Patient Record System (CPRS), chart review, computerized clinical reminders of foot screens completed, in which our baseline was 0% and follow-up data indicated 80.1% and 100% adherence, respectively. The new computerized, patient centered, interactive foot care education satisfaction response was 88% and 100% completely agree with, the new interactive computer education method and effectiveness. This project focused on their risk for limb threatening complications, the quality of the preventive care the veteran is receiving and their level of self-care behavior. A comparison of retrospective data taken of the same six month time frames of the previous years established a baseline of comparison for amputation rates, infection rates and urea reduction ratio % (URR %) for the study. Infection rate and amputation rate baseline was 19 and 11, respectively. Follow-up during the studies revealed a decrease to 3 and 5 infection rate and 1 and 0 amputation rate, with a strong relationship to URR% > 65%.

Conclusions: Maximizing the veteran's time with patient centered foot care education during dialysis improves self-management quality foot care indicated by 94% veteran satisfaction of new computerized self-management education method and decreased foot infections and amputations. Our CPRS clinical reminders of foot screens revealed a significant improvement of follow-up data of 90% adherence. There appears to be a definite trend of decreased URR% of less than 65% associated with increased infections leading to amputations and a strong parallel of URR% greater than 65% associated with decreased infection rates and in turn, decreased amputation rates.

Problem

- Veterans are at high risk for foot co-morbidities/conditions
- Dialysis patients have approximately a 10 times greater risk for non-traumatic amputation than non-ESRD patients
- There were 8,911 veterans on chronic dialysis in Fiscal Year 2002
- Amputations in this group*:

* Personal communication, Ann O'Hare, MD, MA, Assistant Professor of Medicine, UCSF and Staff Physician, VA Medical Center, San Francisco, CA.

Problem continued

- Annual incidence of first amputations among veterans receiving chronic dialysis
  - 3.5% per year for all chronic dialysis patients
  - 6.8% per year for chronic dialysis patients with diabetes
  - 2.3% per year for chronic dialysis patients without diabetes
  - These rates are roughly 20-30 times higher than those among veterans with “normal” kidney function (GFR>=60)

CQI Questions

1) Can foot screening & education of at-risk dialysis patients be increased

2) Can veterans on dialysis be taught foot care information using a self-study PowerPoint presentation during dialysis

Design

- Team Project Design
  - Cheryl Berman, BS, RD, EMT, CDE, CPT, CMC, Principal Investigator
  - Jeff Robbins, DPM
  - Tracy Meling, BSN, RN
  - Leonard Pogach, MD, MBA, FACP
  - Sharon Watts, ND, NP, CDE
- Implementation Team
  - Dialysis staff and Diabetes Clinical Specialist Case Manager/ Educator at VA, Omaha, Nebraska

Plan of Implementation

- Form Dialysis foot care team, provide staff education, demonstrate foot inspection/assessment technique
- Provide access to all staff of computerized clinical reminders and use of the template for charting
- Modify the foot risk score clinical reminder to include PVD and dialysis patients, in addition to diabetes, for ease in charting and obtaining Prosthetic services
- In-service of Dialysis staff demonstrating, screening patient centered foot care, patient education books & posters from VA and DOD Tool Kit & staff resources

If you have diabetes, please take off your shoes and socks.

Wenn Sie Diabetes haben, ziehen Sie bitte Ihre Schuhe und Socken aus.

Se soffrite di diabete, siete pregati di togliervi le scarpe e le calze.

Si usted tiene diabetes, por favor quitese las medias y los zapatos.

Kung mayroon kang diabetes, maari lang tanggalin ang sapatos at medyas.

Afai e maua oe i le mai suka, faamolemole aveese ou seevae ma totigi.

당뇨병이 있으신 분은 신발과 양말을 벗으십시오.

糖尿病の人は靴とソックスを脱いでください。

Plan of Implementation continued

- Education of staff with professional interactive foot care CD
- Education of veterans with patient centered interactive CD on foot care
- Review Urea Reduction Ratio percentage (URR%), foot infection rates and amputation rates

Methods:

- Veterans undergoing hemodialysis at the VA Nebraska-Western Iowa Health Care Dialysis Unit at Omaha, Nebraska participated in the foot screening and foot care interactive self-management education study
- Single center Dialysis Unit, two six month block time frame studies
- All dialysis veterans participated in one or more interventions

Interventions

- In-service of Dialysis staff
- Demonstration of foot screen
- Demonstration of patient centered foot care
- Put together patient education books and materials
- Posters from VA and DOD Tool Kit
- Staff resources, books, posters
- Staff education with interactive foot care CD
- Patient education with new interactive foot care CD
- Formalized Dialysis foot care team

Interventions continued:

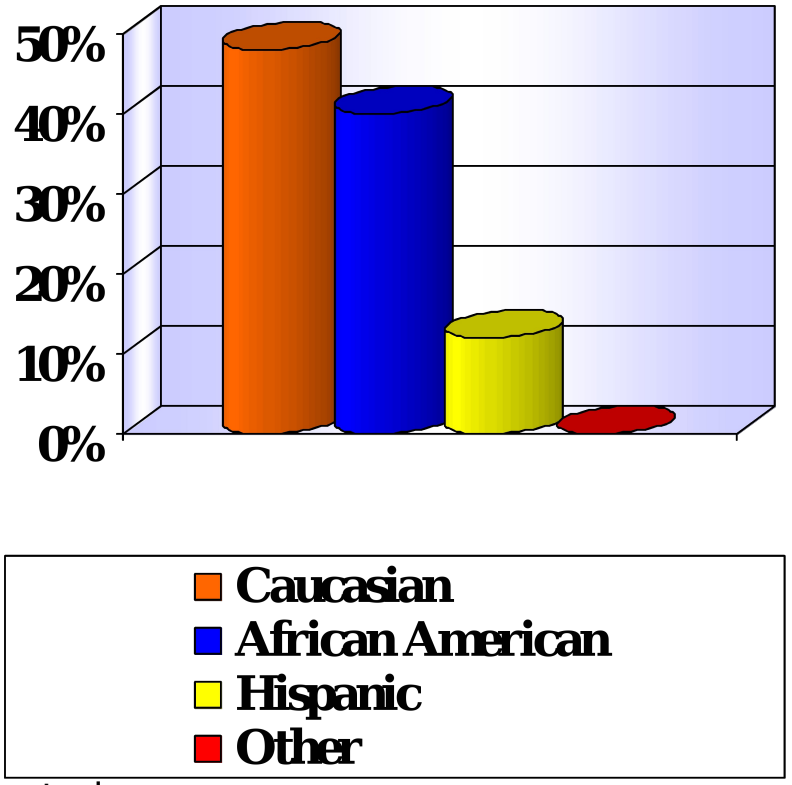
- Staff given access to computerized clinical reminders
- Consistency with template for charting of foot screen and assessments
- Ease in obtaining Prosthetic and Podiatry services
- Tracking Urea Reduction Ratio (URR%) for dialysis adequacy and relationship to increased risk for foot infections and amputations
- Expanded CQI data for the Dialysis foot staff

VASCULAR/DIABETIC FOOT						
Objective: Reduce and prevent incidence of wound increasing						
early referral to specialty care management						
	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06
# of Patients						
Patients ck'd Quarterly						
Patients ck'd Monthly						
# of New Patients						
# of Patient Deaths						
# of Patients Transfered						
Patients with Amp HX						
Patients with new Amp						
%DM						
% Non DM						
Referred to Prostethics						
Following with Vasc/Wound						
Wounds non healing >3 months						
Infected Wounds non healing						
Referred to Vascular/Wound						
High Risk						
Low risk						
HGB A1C <7.0 DM (quarterly)						
URR >65%						
URR <65%						
Referred to Nail Clipping						
Referred to Nurse Practioner						
Referred to Endocrine						
Refused Assessement						

Demographics on Patients for First Six Month Block Time Frame

(N=25*)

- Sex
  - 100% male
- Race
  - 48% Caucasian
  - 40% African American
  - 12% Hispanic
  - 0% Other

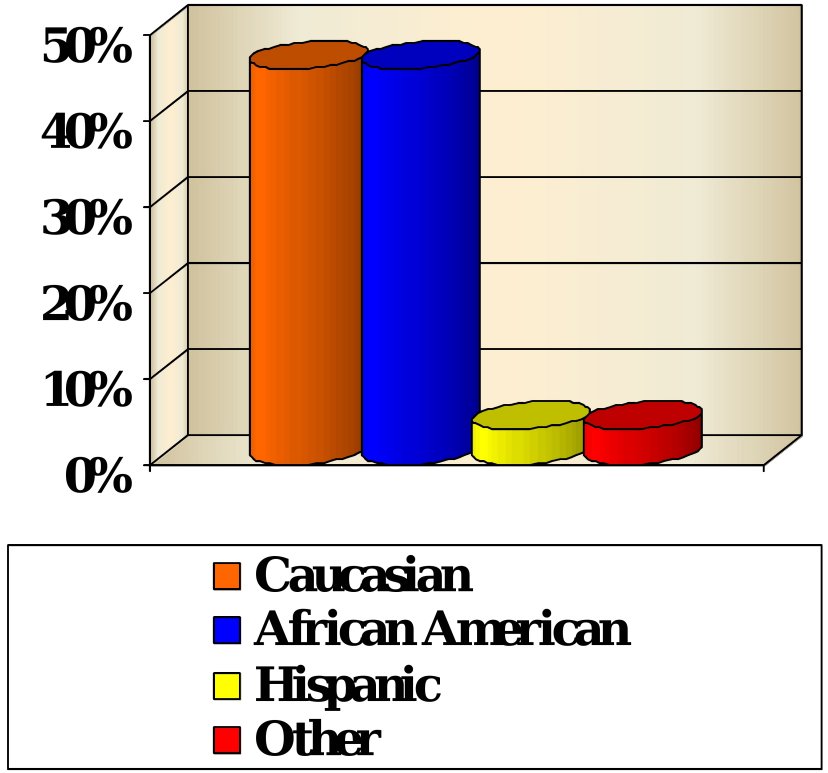


*25 out of 36 dialysis patients participated in the study

Demographics on Patients for Second Six Month Block Time Frame

(N=26*)

- Sex
  - 100% male
- Race
  - 46% Caucasian
  - 46% African American
  - 4% Hispanic
  - 4% Other

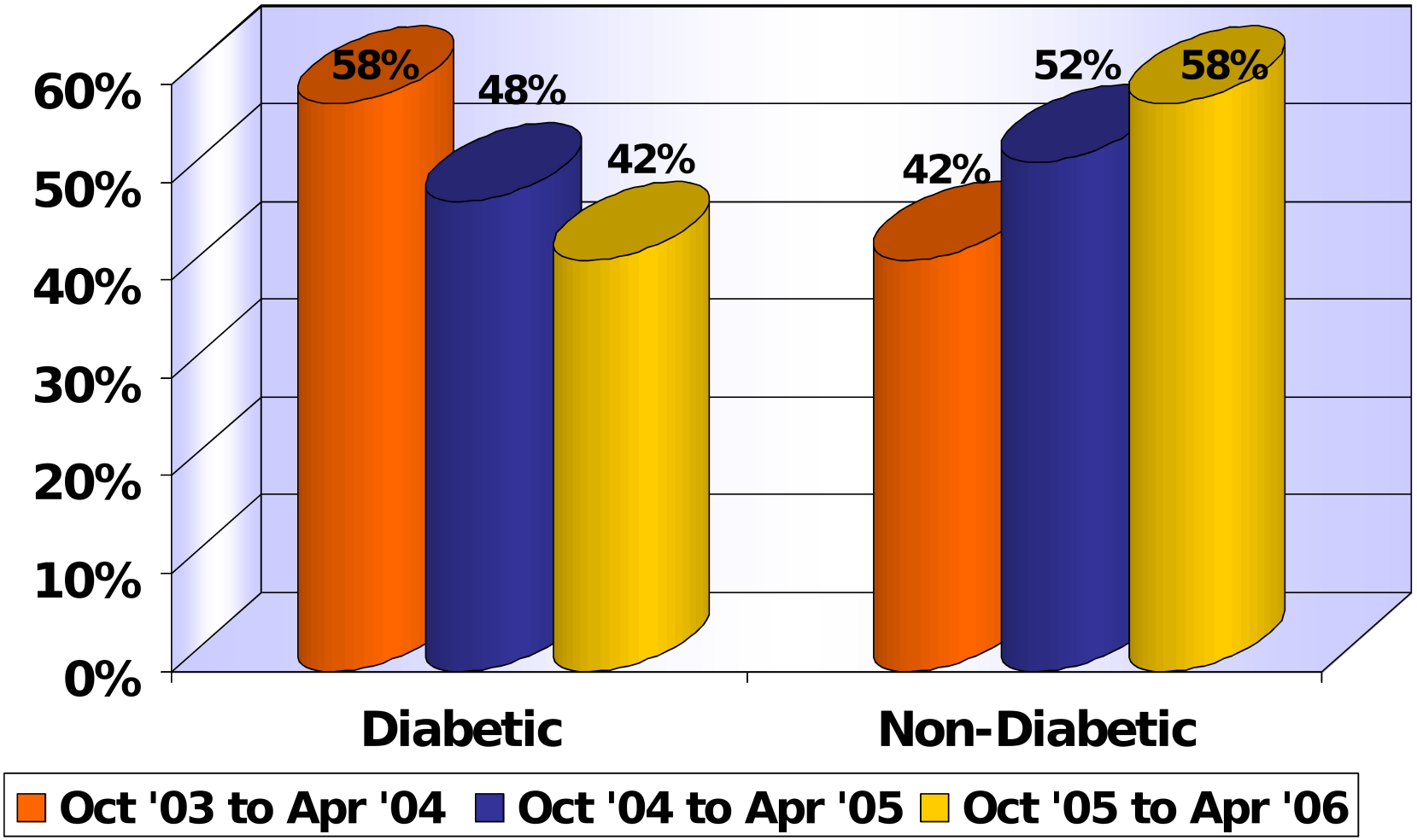


*26 out of 40 dialysis patients participated in the study

% of Diabetic ESRD veterans to % of Non-Diabetic ESRD veterans in study

- Baseline-58% diabetics to 42% non-diabetic
- Follow-up 1st 6 month block- 48% diabetics to 52% non-diabetic
- Follow-up 2nd 6 month block- 42% diabetics to 58% non-diabetic

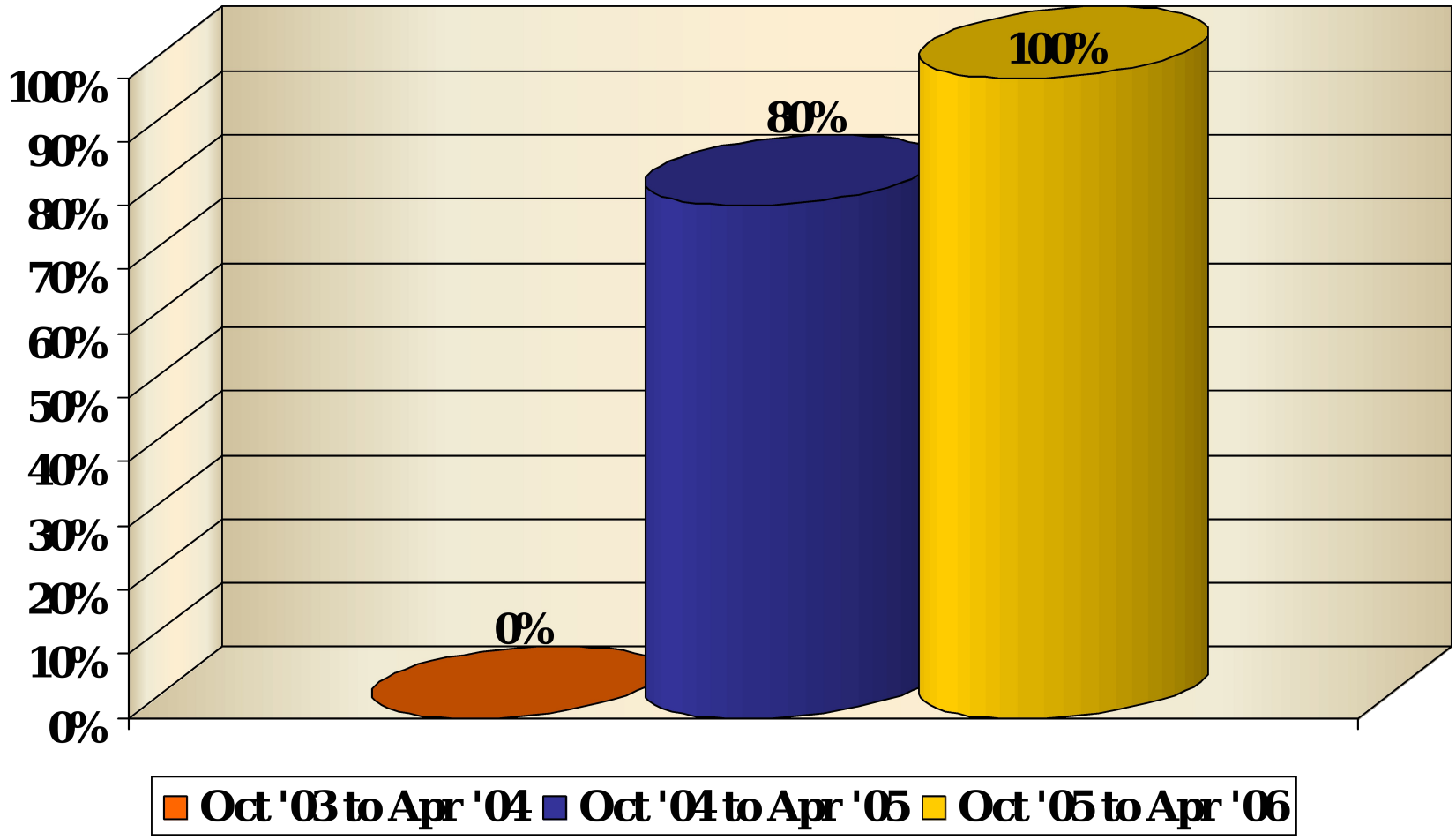
% of Diabetic ESRD patients to % of Non-Diabetic ESRD patients



Results

- Computerized Patient Record System (CPRS) foot screening collection for two 6 month block time frames
- Baseline-0%
- Follow-up 1st 6 month -80.1%
- Follow-up 2nd 6 month -100%

CPRS Clinical Foot Reminder Results



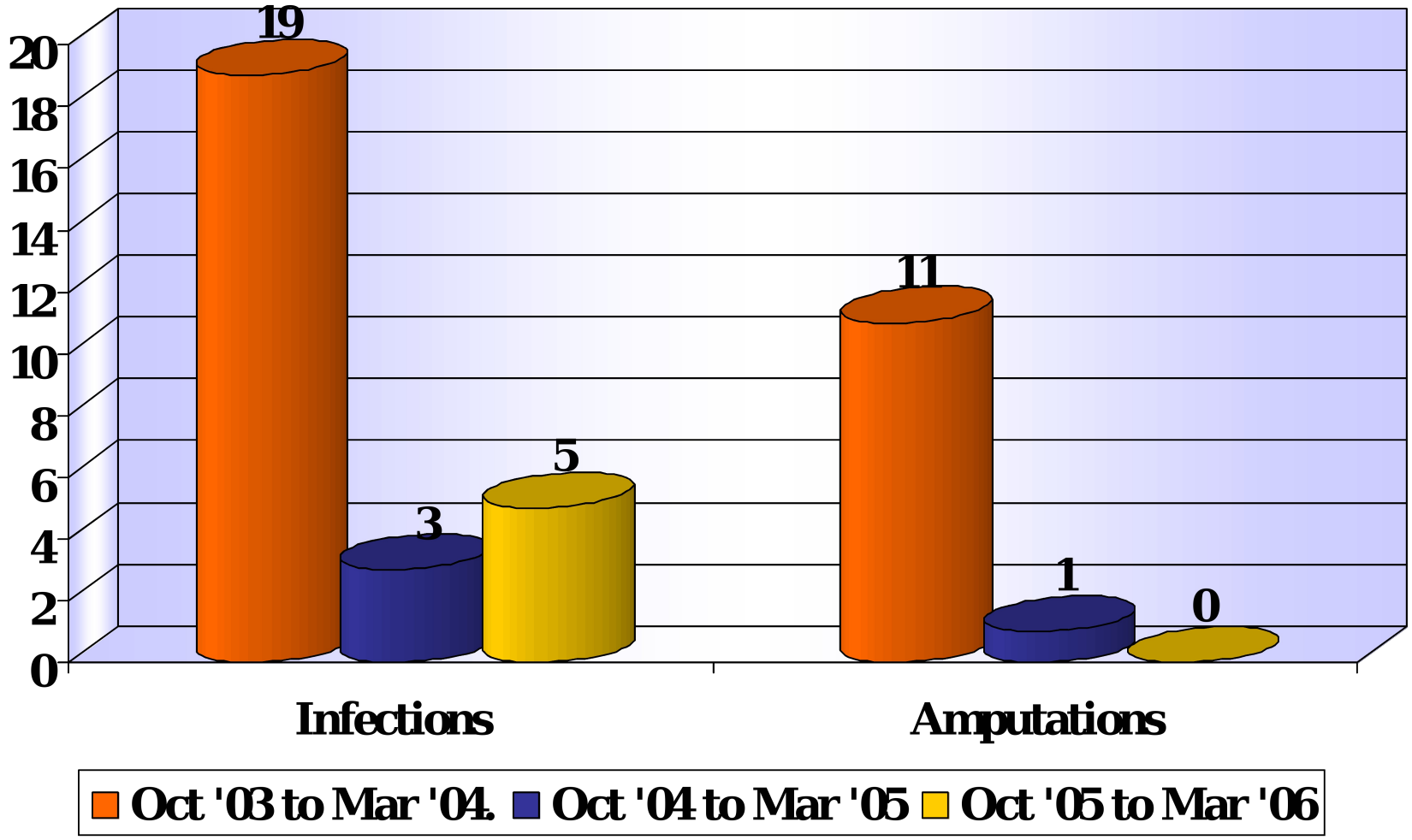
There were no Clinical Reminders completed in 03-04, the program was not
activated until 04-05

Results continued:

Infection and Amputation Rates

- Baseline- 19 infections and 11 amputations
- Follow-up 1st 6 months- 3 infections and 1 amputations
- Follow-up 2nd 6 months- 5 infections and 0 amputations

Number of Infections and Amputations During Study Periods



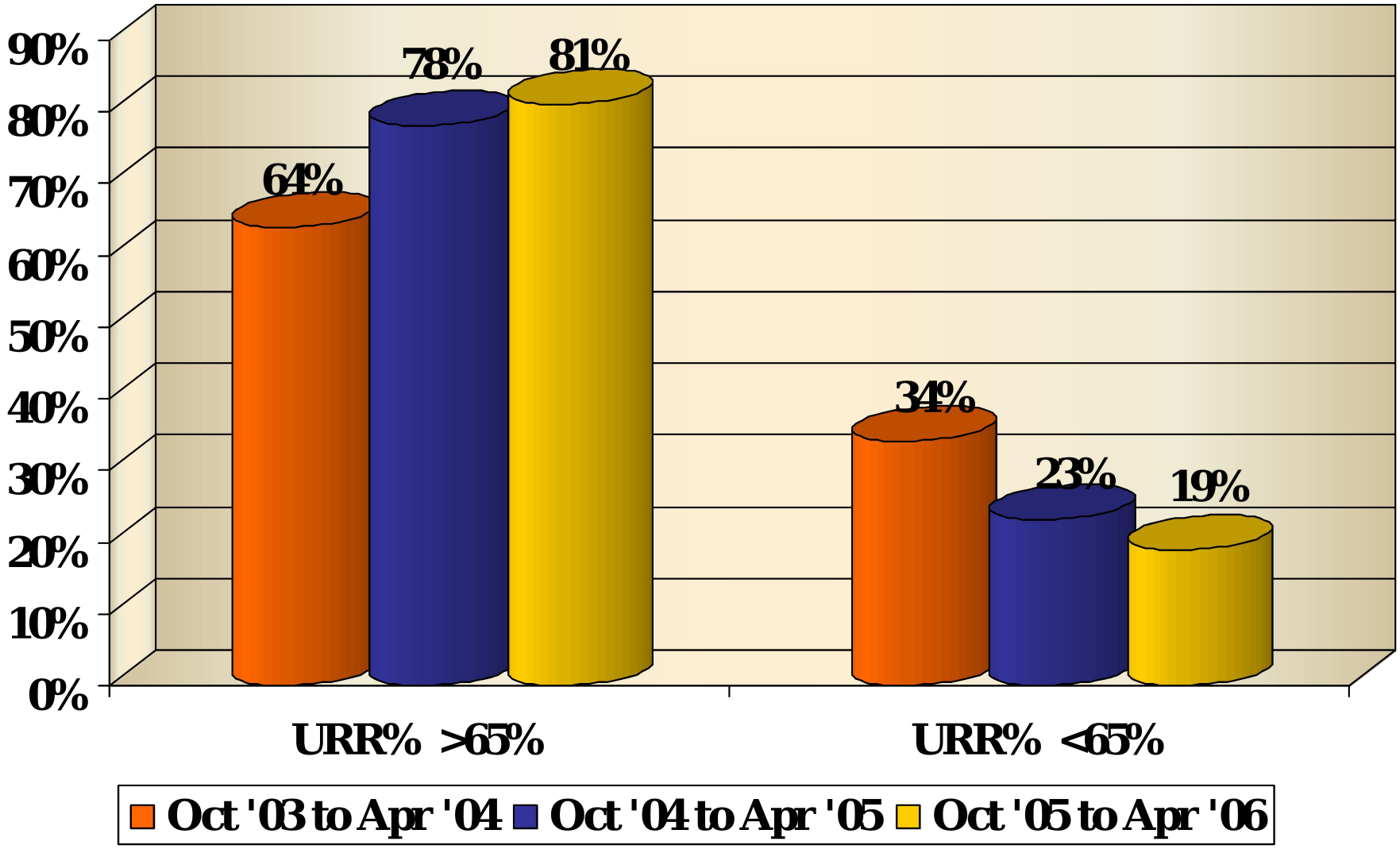
Urea Reduction Ratio Percentages (URR%)

- URR% < 65%*
- Baseline-34%
- Follow-up 1st 6 months 23%
- Follow-up 2nd 6 months 19%

- URR% > 65%
- Baseline-64%
- Follow-up 1st 6 months 78%
- Follow-up 2nd 6 months 81%

* Inadequate hemodialysis measured by URR < 58.5%, is a risk factor for lower extremity amputation (LEA) among ESRD patients with Diabetes.[2]

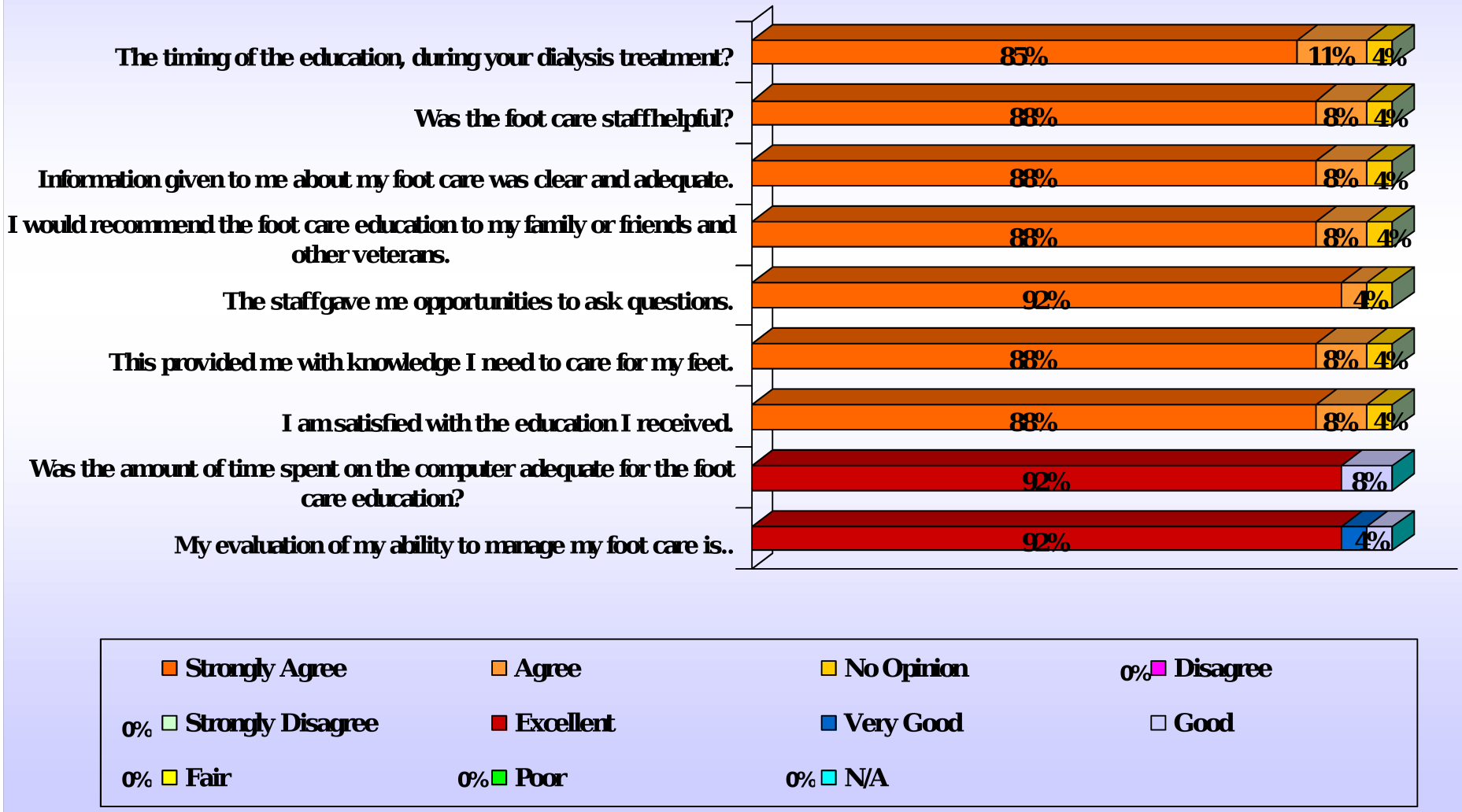
Urea Reduction Ratio (URR)% for Dialysis Adequacy



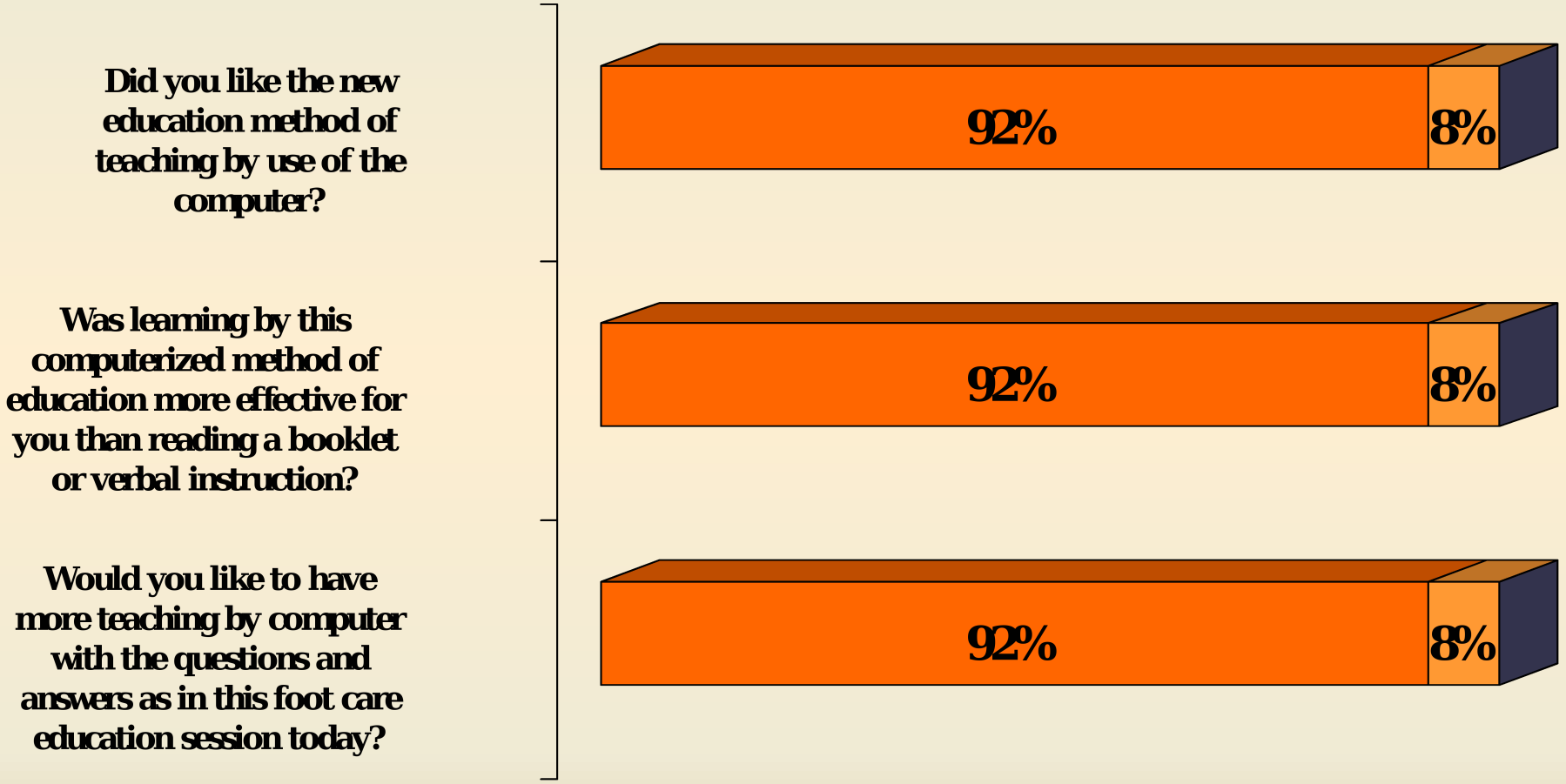
New Computer Interactive Education Method

- 88% during the 1st 6 months, and 100% during the 2nd 6 months of patients completely agree with new interactive computer education method and effectiveness
- 96% during the 1st 6 months, and 97% during the 2nd 6 months of Patient Overall Satisfaction from VA Patient Satisfaction Survey

Patient Satisfaction Survey Results



Patient Foot Care Education Survey Results


Did you like the new education method of teaching by use of the computer?
92%
8%
Was learning by this computerized method of education more effective for you than reading a booklet or verbal instruction?
92%
8%
Would you like to have more teaching by computer with the questions and answers as in this foot care education session today?
92%
8%
Completely Agree
Somewhat Agree
Not sure
Somewhat disagree
Completely disagree

Conclusions

- Maximizing the veterans time with patient centered foot care education during dialysis improved self-management foot care behaviors from the initial assessment to the end of the study, including use of a new interactive CD education
- 94% overall Veteran satisfaction of new foot care interactive computerized self-management education method
- 97% overall patient satisfaction (SHEP Survey)
- Identified dialysis veterans needs of long handled mirrors for foot care self-management and with use of clinical reminders
- CPRS Clinical Reminders follow-up data of foot screening revealed 90% overall adherence

- Education of Prosthetic team members of incidence of high risk foot led to quick and easier access of Prosthetic devices and services
- Improved Dialysis staff knowledge
- Expanded CQI data for the dialysis foot and improved patient outcomes, i.e., with addition of URR % , infections, wounds and non-healing wounds
- Definite trend of decreased URR % < 65%, increases infection leading to increased amputations
- Strong parallel of URR % > 65% decreases infection rates and decreases amputation rates
- No additional staff required
- As funding is available, CPRS Clinical Reminders foot template will be modified, and in addition, will also include ICD-9 codes for PVD and ESRD which would alert staff to veterans with high risk feet
- Highly recommend foot screening be completed in Renal Clinics, which may have prevented many of these amputations
- Beneficial for veterans to have a CDE/diabetes educator, in addition to dialysis foot nurse, to assist in foot care and education in VA Dialysis Units
- Suggest future studies to determine patient education retention and continued foot care self-management behaviors

- Cost savings $440,000 to $825,000*

*Boulton AJM, Vilkyte,L, Ragnarson-Tennvall, G, G, Apelqvist,J. “The Global Burden of Diabetic Foot Disease,” Lancet. November 12, Vol 366, 2005.

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   www.kidney.org/professionals/kdoqi/guidelines_updates

   http://vaww.appc1.va.gov/primary/page.cfm?pg=74#Top (Prevention Amputation Care and Treatment-PACT site)

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